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Privacy Technologies and Policy

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Revised Selected Papers

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Preface

The European Union Agency for Network and Information Security, the European Commission Directorate General for Communications Networks, Content and Technology, and the University of Luxembourg organized APF 2015 in the framework of the presidency of the Council of the European Union. In all, 24 papers were submitted after the open call for papers; an international reviewing board selected eleven papers for presentation. After the conference, the authors submitted their revised papers for the present book, which constitutes the peer-reviewed proceedings of this event.

The contributions reflect the growing importance of networked IT services in our lives. While today the use of many of these services is optional and regarded as a mere convenience, it is to be expected that in the future many of them will become (quasi) mandatory; be it because the social environment expects a certain participation, because certain crucial services are hard to find offline, or even because – in the light of e-government – participation is legally required. Considering these developments, IT services need to be trusted by a large proportion of the population. Hence, their implications for the rights of free information and self-expression need to be studied, and thus security and privacy considerations gain importance.

The concept of privacy as a legal and social term was formed in the late 1800s. It stems from the extension of the physical integrity of the body to integrity of the mind. In their infancy, these ideas were meant to protect citizens from the ruling class. Naturally, privacy gained more importance with the rise of democracy. Together with the governmental use of technology, this development reached its preliminary peak in the development of the right to informational self-determination in the 1980s. However, since then, IT technology has been broadly adopted commercially; thus policy in this field is no longer restricted to limiting the actions of state bodies, but also needs to regulate commercial applications. The policy maker needs to set a frame in which legitimate commercial interests can co-exist with the right to privacy. Besides the legal aspect, privacy has been discussed in technical terms. In the beginning, privacy-enhancing technologies (PETs) focused on techniques for confidentiality and anonymous communication. Nowadays, PETs include technologies for controlled disclosure, fine-grained access control, destruction of data, repudiation, reputation, accountability, etc. While in the beginning many technologies were out of reach because of costs, today it is getting easier to deploy them.

However, developments in technologies, policy, and industry practices do not converge easily. APF aims to close the gap by focusing on paradigms that bridge the fields. This year, we focused on “Privacy by Design” (PbD), i.e., the attempt to combine technical and organizational measures to ensure the basic rights of the individual. It is not a method but rather a mind-set, which asks for continuous effort throughout the development life cycle. New technological trends of distributed and decentralized data management create opportunities as well as challenges for achieving privacy. Awareness of these trends further helps to bridge the gap between technology and policy.

The papers of this book were presented in three sessions.

The first session, "Measuring Privacy", contained four talks. Meiko Jensen presented a methodology for assessing the maturity of PETs as a guideline for developers and DPAs as well as policy makers to objectivize expert opinions. Vinh Thong Ta described a case study on formal accountability for biometric surveillance. Laurence Claeys showed the USEMP value model that aims at improving transparency and privacy in online social networks from a legal, economic, and technical perspective, in order to empower the users to take back control of their data. Rehab Alnemr presented a practical tool for privacy impact assessment for the cloud as an aid for cloud service customers to choose the provider that meets their needs.

The second session dealt with "Rules and Principles". Wernher Behrendt discussed open questions on consent for sensors and a codex for sensors introducing courteous sensors. Ioannis Krontiris presented a case study on Privacy-ABCs for the adoption of PETs by users and service providers. Wouter Lueks spoke on revocable privacy and presented use cases enabled by practical cryptographic protocols for real-world problems. The session was closed by Dawn Jutla, who presented PIP, a (privacy) injection pattern for inserting privacy patterns in software.

The third session covered "Legal and Economic Perspectives on Privacy". Milana Pisarić presented a case study on the surveillance of electronic communications in the Republic of Serbia, sharing with APF a view beyond EU law. Claudio Caimi described legal and technical perspectives in the definition of data-sharing agreements. Finally, Gabriela Gheorghe presented a new approach to online privacy, combining legal and technological measures and focusing on the importance of control.

Panels covered ethical aspects of data processing, privacy in the era of big data, and the economics of PETs; keynotes provided further food for thought. While Giovanni Buttarelli emphasized the EU digital single market and the importance of trust in electronic services by EU citizens, Naomi Lefkovitz gave the discussion a non-EU dimension, stressing the fact that the economy is already global. Charles Raab discussed the value of privacy for society as such and contested the idea of a trade-off between security and privacy with sceptical scrutiny. The event was closed by Bart Preneel who presented a cryptographer's view on mass surveillance, concluding with the fundamental question of why it is legal to sell unsafe technology.

A special session on "Multidisciplinary Aspects of Privacy by Design" was organized by the KU Leuven Department of Computer Science and Centre for IT and IP Law. The session was opened with a keynote by Marit Hansen; she gave insights into her practical experiences with privacy by design within a data protection authority. Dan Bogdanov, Matthias Pocs, and David Stevens then joined her for a panel chaired by Antonio Kung. The session thus brought together perspectives of data protection authorities, data protection officers, technology industry, and stakeholders involved in standardization. Lessons learned from the special session are summarized in the present book by Tsormpatzoudi, Berendt, and Coudert, the panel organizers.

In sum, APF 2015 assembled a wide range of current perspectives and state-of-the-art research on privacy, and it stimulated inspiring discussions also on the multi- and interdisciplinary challenges and solution approaches whose importance for real-world privacy is becoming increasingly clear. For the future, we aim at attracting more contributions from non-technical fields in order to broaden and deepen the insights

gained. The next APF will be hosted by Goethe University Frankfurt, Germany, in September 2016. It will encourage, among other topics, discussions on privacy impact and risk assessment.

We thank everyone who made this great event possible: the sponsors, authors, reviewers, and local organizing teams of APF 2015.

February 2016

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